

● Stakeholders Meetings

We encourage you to attend the electrical stakeholder meetings during the upcoming months. The department is again offering 4 Continuing Education Units credit (CEU's) for those who attend the meeting and successfully complete a take-home examination.

Discussion will include the new RCW, proposed WAC rule revisions, purchasing electrical work permits online, and a question and answer period.

Stakeholder Meeting Schedule

Jan 18, 2000	Washington Mutual Bldg. Community Room 500 Pacific Avenue, Bremerton, Washington	6:30 PM-9:00 PM
Jan 31, 2000	Moore Branch Public Library 215 S. 56 th Street, Tacoma WA.	6:30 PM-9:00 PM
Feb 15, 2000	City Council Chambers 321 E. 5 th Street, Port Angeles, WA.	6:30 PM-9:00 PM

● **AGAIN The #1 Most Written Correction: NEC 110-3(b) Installation and Use.**

NEC 110-3: Listed or labeled equipment shall be installed and used in accordance with any instructions included in the listing or labeling.

Installers must **read and understand** the instructions and labels for electrical equipment before making the installation. All too often the electrician will throw away manufactures instructions without reading them. The listing and labeling approval depends upon the manufacturer's instructions for the proper function and safety of the equipment. Information is contained on paper instructions within the package and on data labels posted on the equipment. Good examples are... "Copper conductors only", "Maximum fuse size 60 amps, Minimum circuit ampacity 47 amps", "use as service equipment only", "maximum branch circuit rating 125 amps, "minimum clearance 6", "number of twisted wires under a crimp".

Information on the product bag or box will also indicate the product use. Wire nuts and NM-B cable connectors, for instance, allow only certain combinations of wire sizes to be used.

The inspector may request the product information sheets during the inspection process. Having this information available will help expedite your project.

● **Solar Photovoltaic Systems**

NEC article 690 describes these systems. We have inspected these systems on street and highway warning signs, gate openers, and remote public bathrooms for many years. Remote weather stations, monitoring equipment and other utilization equipment are now installed with this type of power source. Installations of solar photovoltaic systems require an electrical work permit prior to beginning work. **If the system voltage is 30 volts or less**, property owners, (01) general or (06) limited energy electrical contractors may perform the installation. **If the system voltage is above 30 volts**, property owners or (01) general electrical contractors may perform the installation.

● Bonding of Hydro-massage Tubs.

NEC 680-73 States: “All metal piping systems, metal parts of electrical equipment and pump motors associated with the hydro-massage tub shall be bonded together using a copper bonding jumper insulated, covered or bare not smaller than # 8 solid.” This new section requires bonding the metal non-current carrying metal parts of hydro-massage tubs to the metal piping system that supplies the massage tub unless it incorporates the use of a double insulated motor and inaccessible non-current carrying metal parts.

The code addresses the issue of double insulation by stating: “Metal parts of **listed equipment** incorporating an approved system of double insulation and providing a means for grounding internal nonaccessible, noncurrent carrying metal parts shall not be bonded.”

As in all electrical installations, the manufacturer’s installation instructions must be followed in determining the proper installation procedure for the tub.

● NEC 411 Lighting Systems operating at 30 volts or less.

Low voltage lighting systems must be installed as complete “listed systems.” Low voltage lighting systems use components that are evaluated to be used together per the listing requirements and the manufacturer’s installation instructions. Mixing and mismatching components from different manufacturers may violate the installation instructions and listing of these systems resulting in fire or other heat damage.

Installations are being made that violate the listing and manufacturer’s instructions. In many cases, multiple manufacturer’s components (e.g. cable, lighting fixtures, transformers, etc) are being used by the installer to create a system. If the manufacturer’s instructions do not specifically allow the different manufacturer’s components to be used together, the installation is not acceptable.

Transformers used with low voltage lighting systems must be listed for the application and supplied with the system. Secondary conductors must not be grounded.

Caution should be used in the design of these systems since using the incorrect low voltage transformer can cause overheating of the fixture, possible fires or create other safety hazards.

Low voltage wiring systems must not be concealed or extended through a building wall, unless using a wiring method specified in NEC Chapter 3.

● Code Question of the Month

This month’s Code Question: In a hospital facility where both the normal and essential branch circuit panelboards serve the same individual patient vicinity, what is the minimum size of the conductor that is required to bond the two panels together? A. #12 cu; B. #10 al; C. 10 cu; D 1/0 cu.

Last month’s Code Question: May a feeder consisting of paralleled conductors be installed in two different types of metal conduit, such as **IMC and rigid steel**?

The Answer: The properties of each parallel run must be the same where the runs are in separate conduits.